CoCASA Algorithm Reference

This document describes the algorithms that CoCASA uses to produce reports. If "Apply ACIP Recommendations" is not checked on the report criteria screens when the report is run, all of the doses are considered valid and a dose count is the only thing that determines whether or not the patient is complete and up to date for an antigen. Otherwise the rules listed below are applied for each antigen.

Unless otherwise noted, the following definitions apply to all of the algorithms:

Complete and Up To Date:
The patient has received all of the specified vaccinations by either the compliance date or the compliance age as chosen by the user. If, when using compliance age, the patient's date of birth causes his/her compliance age to fall after the assessment date, the patient is not included in the report, even if he/she falls within the age range chosen for the report. In other words, if you choose an As Of Age for compliance, any patients that have not yet reached that age at the assessment date will be excluded from the report.

Complete But Late Up To Date:
The patient is not up to date at the compliance date or the compliance age requested for the report, but he/she becomes up to date according to the rules of the algorithm between the compliance date/age and the assessment date.

Bring Up To Date with One Visit:
The patient is not currently up to date by the assessment date, but is one dose shy of being complete for the particular antigen(s) in question. If a report is run against a series of antigens and all of the remaining vaccinations could be given on the same day, then the patient could still be brought up to date with one visit.

Missed Opportunity On the Last Immunization Visit:
On the patient's last visit for an immunization he/she received a dose of a different antigen than the antigen in question, or there was a reason a different antigen was not given, and at the time of that visit a valid dose of the antigen in question could have been administered in keeping with the patient's age and the time interval from the previous valid or invalid dose.

Missed Opportunity On All Immunization Visits:
During any of the patient's immunization visits he/she received a dose of a different antigen than the antigen in question, or there was a reason a different antigen was not given, and at the time of that visit a valid dose of the antigen in question could have been administered in keeping with the patient's age and the time interval from the previous valid or invalid dose.

Missed Opportunity On All Previous Visits:
During any of the patient's visits, not just immunization visits, he/she received a dose of a different antigen than the antigen in question, or there was a reason a different antigen

was not given, or there was a non-immunization visit of some kind, and at the time of that visit a valid dose of the antigen in question could have been administered in keeping with the patient's age and the time interval from the previous valid or invalid dose.

Missed Opportunity On Only Non-Immunization Visits:
During any of the patient's non-immunization visits, a valid dose of the antigen in question could have been administered in keeping with the patient's age and the time interval from the previous valid or invalid dose.

Eligible for Immunization:
Those patients who are not complete and up to date as of the assessment date and have no missed opportunities and, based on the rules of the antigen(s) in question, could receive a valid dose of that antigen at the assessment date.

Last Visit < 12 Months Ago or Last Visit >= 12 Months Ago:
Only patients who are eligible for immunization are counted in these totals. Both immunization visits and non-immunization visits are counted.

Note: When ACIP recommendations are applied, the interval for compliance is calculated from the last *valid* dose, and the intervals for missed opportunities, eligibility, and for coming due are calculated from the last valid *or* invalid dose.

DTaP

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 6 weeks or later.
- Dose 2 must be given at 10 weeks or later and at least 4 weeks after dose 1.
- Dose 3 must be given at 14 weeks or later and at least 4 weeks after dose 2.
- Dose 4 must be given at 12 months or later and at least 6 months after dose 3.
- Dose 5, if given, must be given at 4th birthday or later and at least 6 months after dose 4.

ACIP recommends the following:

- 4 valid doses if dose 4 is given > 4th birthday.
- 5 valid doses if dose 4 is given <= 4th birthday.

Hepatitis A

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 1 year or later.
- Dose 2 must be given at 18 months or later and at least 6 months after dose 1.

ACIP recommends the following:

- 2 valid doses

Hepatitis B

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 can be given at birth.
- Dose 2 must be given at 4 weeks or later and at least 4 weeks after dose 1.
- Dose 3 must be given at 24 weeks or later and at least 8 weeks after dose 2 and at least 16 weeks after dose 1.

ACIP recommends the following:

- 3 valid doses

HIB

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 6 weeks or later.
- Dose 2 must be given at 10 weeks or later and at least 4 weeks after dose 1.
- Dose 3 must be given at 14 weeks or later and at least 4 weeks after dose 2.
- Dose 4 must be given at 12 months or later and at least 8 weeks after dose 3.

ACIP recommends the following:

- If age at compliance date > 59 months the patient is complete and up to date.
- If patient has 4 valid doses, the patient is complete and up to date.
- Any valid dose found after the age of 15 months means the patient is complete and up to date.
- If the first valid dose was given after 7 months and there are two more doses with the last one given after 12 months and there is at least 8 weeks between dose 2 and 3, then the patient is complete and up to date.

MMR

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 12 months or later and cannot be given within 1-27 days after receiving varicella, smallpox, laiv (Flumist), yellow fever, monovalent measles, mumps or rubella.
- Dose 2 must be given at 13 months or later and at least 4 weeks after dose 1 and cannot be given within 1-27 days after receiving varicella, smallpox, laiv (Flumist), yellow fever, monovalent measles, mumps or rubella.

ACIP recommends the following:

- If the patient was born before 1957 and is not a health care worker, he/she is complete and up to date.

- If the patient was born during or after 1957 or is a health care worker, he/she must have 2 valid doses to be complete and up to date.

Meningococcal

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 11 years or later if it is Menectra, or 2 years or later otherwise.

ACIP recommends the following:

- If there is at least one dose of Menectra on or after the 11th birthday, the patient is complete and up to date.
- If the patient has no risk factors and the compliance date is on or after the 2nd birthday and before the 11th birthday, the patient is complete and up to date. Risk factors are asplenia, terminal complement component deficiency, military recruits of the U.S., contacts in a meningococcal outbreak, travel (internationally) to a risk area, lab exposure to meningococcal, and college student in dormitory.
- If the patient has a risk factor, the compliance date is on or after the 2nd birthday and before the 11th birthday and the patient has at least 1 dose of meningococcal (excluding Menectra), the patient is complete and up to date.

Pneumococcal Conjugate Vaccine (PCV)

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 6 weeks or later.
- Dose 2 must be given at 10 weeks or later and at least 4 weeks after dose 1.
- Dose 3 must be given at 14 weeks or later and at least 4 weeks after dose 2.
- Dose 4 must be given at 12 months or later and at least 8 weeks after dose 3.

ACIP recommends the following:

- If the patient's age is > 59 months at the compliance date, he/she is complete and up to date.
- 4 valid doses means the patient is complete and up to date.
- Any valid dose found after the patient's 2nd birthday means the patient is complete and up to date.
- If there are 2 doses between 12 and 24 months and they are at least 8 weeks apart, the patient is complete and up to date.
- If there are 2 doses between 7 and 12 months, 4 weeks apart, and 1 dose after 12 months, at least 8 weeks from the previous dose, then the patient is complete and up to date.

Polio

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 6 weeks or later.
- Dose 2 must be given at 10 weeks or later and at least 4 weeks after dose 1.
- Dose 3 must be given at 14 weeks or later and at least 4 weeks after dose 2.
- Dose 4 must be given at 18 weeks or later and at least 4 weeks after dose 3.

ACIP recommends the following:

- 3 valid doses required if the 3rd dose was given on or after the 4th birthday.
- 4 valid doses required if the 3rd dose was given before the 4th birthday.

Pneumococcal Polysaccharide Vaccine (PPV)

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 2 years or later.
- Dose 2, if given, must be given at 7 years or later and at least 3 years after dose 1 if the patient is under 10 years of age at the compliance date, or at least 5 years after dose 1 if the patient is 65 or older at the compliance date.

ACIP recommends the following:

- If patient is less than 65 years of age at the compliance date and has no risk factors, he/she is automatically complete and up to date. Risk factors include: heart disease; lung disease – chronic, not asthma; sickle cell disease; diabetes mellitus; alcoholism; liver disease – chronic or cirrhosis; Hodgkins disease; renal disease/nephrotic syndrome; asplenia; organ transplant; lymphoma; leukemia; HIV infection; steroids, long term; radiation therapy; cancer drugs; American Indian or Alaskan Native.
- 1 valid dose if the patient is greater than 10 years of age and less than 65 years of age at the compliance date and has a risk factor.
- 2 valid doses if the patient is less than 10 years of age at the compliance date and he/she has a risk factor.
- 1 valid dose if the patient was over 65 years of age at the time of the first dose.
- 2 valid doses separated by 5 years if the patient was under 65 years of age at the time of the first dose and is now over 65 years of age as of the compliance date.

Td

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 7 years or later.
- Dose 2 must be given at 7 years or later and at least 4 weeks after dose 1.
- Dose 3 must be given at 7 years or later and at least 6 months after dose 2.

- Boosters after dose 3 must be given at least 5 years after the previous dose.

ACIP recommends the following:

- At least 3 valid doses and at least 1 dose given in the ten years prior to the compliance date (even if ACIP recommendations were not applied).

Varicella

For validity (if ACIP recommendations are applied; otherwise all doses are valid):

- Dose 1 must be given at 12 months or later and cannot be given within 1-27 days after receiving MMR, smallpox, laiv (Flumist), yellow fever, monovalent measles, mumps or rubella.
- Dose 2, if required, must be given after 13 years plus 4 weeks and at least 4 weeks after dose 1, and cannot be given within 1-27 days after receiving MMR, smallpox, laiv (Flumist), yellow fever, monovalent measles, mumps or rubella.

ACIP recommends the following:

- If there is a reason not given entry that specifies a history of varicella or a positive serology for varicella before the compliance date, the patient is automatically complete and up to date, even if he/she has received no doses of vaccine.
- 1 dose if the first dose is given before 13 years of age.
- 2 doses if the first dose is given after 13 years of age.